

**Notice of Allowability**

Application No.

10/064,791

Applicant(s)

MOVCHAN ET AL.

Examiner

Art Unit

Hai Vo

1771

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the filing of 08/05/2005.
2. ☒ The allowed claim(s) is/are 26-30,32 and 34-38.
3. ☒ The drawings filed on 23 September 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 0816.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Gary Hartman on 08/16/2005.

The application has been amended as follows:

**The claims:**

***Rewrite claim 26:***

A thermal barrier coating on a surface of a component, the thermal barrier coating comprising a ceramic thermal-insulating material having a columnar microstructure with pores and sub-grain interfaces within, at and between grain boundaries of the microstructure, wherein at least some of the pores throughout the thermal-insulating material are closed by sintering to entrap clusters of element carbon and a carbon-containing gas that is insoluble in the thermal-insulating material, wherein the entrapped clusters and the insoluble gas are present substantially throughout the thermal-insulating material in an amount sufficient to thermally stabilize the microstructure of the thermal-insulating material.

***Rewrite claim 34:***

A thermal barrier coating on a surface of a superalloy component, the thermal barrier coating comprising:

a bond coat on the component; and

a ceramic thermal-insulating material having a columnar microstructure with pores and sub-grain interfaces within, at and between grain boundaries of the microstructure, wherein at least some of the pores throughout the thermal-insulating material are closed by sintering to entrap clusters of element carbon and a carbon-containing gas that inhibit further sintering, grain coarsening and pore redistribution within the thermal-insulating material and thereby thermally stabilize the microstructure.

***Terminal Disclaimer***

2. The terminal disclaimer filed on 08/05/2005 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US 6,808,799 has been reviewed and is accepted. The terminal disclaimer has been recorded.

***Reasons for Allowance***

3. The following is an examiner's statement of reasons for allowance: Note that the double patenting rejections have been overcome by the terminal disclaimer. The inclusion of the ceramic thermal insulating material having a columnar microstructure renders the instant claims unobvious over the Harada reference. The plasma-sprayed thermal barrier coating (TBC) of Harada results in the "splats" which is completely different from a TBC of the present invention having a columnar microstructure.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485. The examiner can normally be reached on M,T,Th, F, 7:00-4:30 and on alternating Wednesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HV



**HAI VO  
PRIMARY EXAMINER**